

OCCASIONAL PAPER No. 9
FAIRCHILD TROPICAL
GARDEN

EXPEDITION TO THE PHILIPPINES
AND NETHERLANDS INDIA

By
DAVID FAIRCHILD

COCONUT GROVE, FLORIDA

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The overpowering effect which we experienced when we worked our way through a tangle of vines to this giant Aroid in Mr. Torno's clearing in the virgin forest of Mindanao will never be quite forgotten. It may be a giant strain of the aroid grown under this name occasionally in Florida and with modern technique and abundance of fertilizers should make a spectacular show in some garden here. Its immense leaves when young are said to be excellent eating when properly cooked but as Hugo Curran discovered they are horribly acrid when fresh. *Alocasia macrorrhiza* F. G. Ex. 35.

FAIRCHILD GARDEN EXPEDITION TO THE PHILIPPINES AND NETHERLANDS INDIA 1939-40

Some of the plants collected by the Expedition,
mainly on the island of Luzon

By
DAVID FAIRCHILD

As I sit here in my study in the Kampong and look out through the branches of the big Live Oak tree, still standing where it did when I first set foot on the place in 1916, I see all sorts of trees in the distance. Attached to every one of them is a history that fascinates me, for it is a more living part of my life than many of the so called "great" happenings of my existence, recorded only by some photograph, yellow with age, or some account in words in a book that is falling to pieces.

There is a tree of the Bael fruit, favorite of the Kings of Kandy, grown from seed I gathered in Ceylon. There is an avocado which I keep in memory of a dear friend long since gone who raised it from a seed. There are the mango trees which the wealthy Parsee, J. M. Tata of Bombay gave me as a present in 1902. There is the Canistel tree, its great yellow fruits falling on the ground, the seed of which came from the first tree of its kind I ever saw, one grown by Mr. Boggs who lived on the Cutler road when it was nothing more than a trail. There is Mrs. Fairchild's group of Alexandra palms rapidly recovering from last years freeze, with a history that takes them back into the reign of King Edward the Seventh in Great Britain and his Queen, Alexandra of Denmark. Peering in at me is a massive clump of the Bromeliad, *Hohenbergia*, which Professor Simpson gave me from the specimen he collected in the forests of Haiti, while across the road is a wild grape-fruit tree which my old friend Dorsett discov-

ered in the jungle of Atcheen in North Sumatra. How well I remember his excitement when he brought the fruit in to show me, up there in the tiny village of Kabanjahe!

There seems to be scarcely a single plant here which has not some pleasant association connected with it: some incident, some moment of delight of which it revives a memory when I pass it or stand under its shade. And so I have a collection of fascinating "ghosts" of the past, delightful pictures of beautiful places in foreign lands; of people who have enriched my life; of charming experiences of long ago; of thrilling, exciting incidents, which, had I no living things to remind me of them, would fade away and become blurred as the years speed along.

Not only does every tree bring up a memory of the place where I got the seed or of the person who gave it to me but it recalls the thrill its first flowering brought, the taste of its first fruit, the struggle, perhaps, which we have had, Sands and I, to save it from destruction. It changes with each season and grows older, just as I do. It is a companion with a living history. I cannot understand how so many people are content to look upon their plants as simply things they own, objects which can be bought, and which are entirely replaceable if they perish.

Some such philosophy of gardens runs through my head as I sit down here to write this Occasional Paper in which I propose to describe a few of the plants to be distributed this winter

and give some of the incidents connected with the gathering of their seeds in those fascinating islands on the other side of the world where Mrs. Fairchild and I have just spent a year. To share with you, as it were, something of the romance with which each one of these plants is associated in our minds, I have done my best to picture the background against which our own vivid memories are projected.

To the great initiative and love of adventure of Mrs. Anne Archbold of Washington is due the credit for making this Garden Expedition possible. For many years she has been interested in plants, gathering around her houses in Washington, Bar Harbour, and Nassau, collections of interesting species. When Mrs. Fairchild and I proposed a seed collecting visit to the Moluccas she was taken with the idea and brought here to the Kampong, Thomas Kilkeny, an experienced boat builder who had already made a voyage through the Moluccas in a small boat and who undertook to build a yacht for her along the lines of a Chinese junk in the Ah King Slipway in Hong Kong. It was in this junk, which Mrs. Archbold named "Cheng Ho" after a noted Chinese admiral, that we cruised from Manila down through the various seas which wash the shores of those hundreds of islands composing the Philippines and the Malay Archipelago, particularly the group of islands called by the Dutch the Moluccas, where thousands of species of plants grow which are worthy of trial here in South Florida. The War however brought the expedition to a close prematurely and Mrs. Fairchild and I were absent from America only one whole year. We left our home in Nova Scotia on August 28th 1939, and got back to it exactly one year later.

We stopped in Hong Kong just long enough to inspect the junk and then went on to Manila and spent the next three months collecting in the fascinating island of Luzon. The majority of the plants to be distributed this winter are from seeds we got then and are the ones to be described in this Paper. The later collections, from farther away, such as those from the little known Moluccan islands, are just sprouting in the seed pans and will not be ready to send out for some months yet.

To an old collector like myself, remembering the days when we had to bring our plants home

in clumsy, portable greenhouses because so few of the short lived seeds could stand the long journey home, it was a thrilling experience to put our packages of seeds into the hands of the capable young men in the Pan American office in Manila and feel confident that they would be planted in Coconut Grove fourteen days later. It was no longer ago than 1908 that I predicted, rather timidly I think, to the members of the American Breeders Association meeting in Washington, that some day plants would be sent through the air. Few took me seriously.

It is thanks to the generosity of Colonel Montgomery and to the painstaking care given them by Mr. A. C. Jordahn, Associate Superintendent of the Garden, and Mr. Rayford Vernon, expert plant propagator, that the seeds we sent in are able to appear before you as more or less lusty little plants, ready to struggle for a permanent place here in our garden landscapes. We commit them to your special care, for they represent a very considerable expenditure of money and effort. Many of them will be difficult to get again, for this war insanity makes travel increasingly uncertain and is closing the borders of many countries. Some of them are likely to fail, of course, for it is impossible to predict accurately the adaptability of a plant immigrant to its new environment, but those which succeed should repay the pains taken with them and furnish later supplies of seeds or cuttings for other members of our association to experiment with.

It may easily come about that your particular plant proves to be the only one of its species which "makes a go of it" here and you will have a thrill quite as real as the thrill of discovery when you find this out. I have often wondered if the friends of Parmentier who yielded to his insistence that they plant potatoes, those queer tubers so many people considered poisonous, did not end by boasting of the fact.

One of the reasons why I have been eager for years to collect seeds in this particular part of the world was because I had learned that we would find many islands in both the Philippine and the Dutch East Indian archipelagos where the soil conditions approximate in character some of our coastal soils here in Florida. I found this to be true only in part, for there are more volcanic islands than calcareous ones in

that vast region. Furthermore, in the mountains where some of the finest palms grow, the soil is either neutral or distinctly on the acid side. This fact did not, however, unduly alarm me, for I remembered that even such distinctly acid loving plants as the Azaleas have been grown in peat-filled pot holes in our Miami area and we have many palms whose homes are in the forests of the tropics where the soils are acid but which nevertheless are doing perfectly well here. Trial alone will prove how high is the threshold of tolerance to lime of these species.

What low temperatures will do to these Immigrants coming from near the Equator, time alone will tell. There is nothing more surely a denizen of the tropics than the Coconut. We have evidence that it and many other strictly tropical species of plants will survive here if given slight protection, especially when they are young, during our occasional freezes. The freeze of 1940, which was the most severe ever recorded here, did not by any means denude our gardens.

Species which come from the strand or from near the sea often seem to be hardier than those from the high altitudes of the tropics. The mechanism which enables a plant to withstand salt enables it also to withstand drouth, and this in turn is a factor in its ability to resist the cold. The higher up one goes in his search for plants in the tropics the more likely he is to get species which are adapted only to cool, moist conditions where the temperature goes neither very high nor very low.

Shading is often quite as important as watering or protecting from cold, at least when plants are in their babyhood, although too deep a shade will sometimes stop their growth. Only careful experimentation can determine what is the best environment for a new Plant Immigrant.

I want to emphasize that this was an expedition to collect living seeds of as many interesting plant species as possible which might be worth testing in South Florida. All our efforts were concentrated on gathering ripe fruits, cleaning their seeds, and getting the seeds to Manila in the quickest possible time so that they could catch the weekly air express across the Pacific.

I knew that we should have difficulty in collecting adequate herbarium material for those

of my friends who are systematic botanists, so we adopted a plan which I hope will meet with some measure of approval. Thanks to Mr. Edward P. Beckwith, a veteran of expeditions from Alaska to the Caribbean, who joined us by plane from America as volunteer photographer for the expedition, we have a series of photographs of the flowers and fruits, the flower sheaths and leaf sheaths, of the palms in particular. His negatives were pin sharp and the enlargements show the characters of the various species in a surprisingly satisfactory way. Two sets of these he has generously given us. One of these is deposited with the herbarium material in the Arnold Arboretum and a duplicate set will be filed in the Palm Museum of the Fairchild Tropical Garden.

We also made as complete a set of the palm seeds as was possible. One set has been deposited in the Palm Museum, another, taken from the growing seedlings, has been sent to the Arnold Arboretum and samples of such of the seeds as were divided with the U. S. Plant Introduction Garden at Coconut Grove were sent to the large seed collection of the Division of Plant Exploration and Introduction in Washington. This information is given for the benefit of those who may wish to study the collections.

Some of the plants described in this paper bear no specific scientific name because I was not able to get them from the botanists in Manila nor to find them in the books I had with me on the junk, and our herbarium specimens, as I have indicated, are not sufficiently adequate to enable the systematic botanists to complete their identification. For this reason, as well as for the convenience of those who receive the plants, it is essential that each plant be kept labeled and, if possible, that a record be kept by the person on whose place it is planted of just where on the grounds it was set out. The descriptions given in this Occasional Paper should help to determine later the names of plants whose tags may be lost.

It gives me pleasure, as I hope it will you, to associate with these plants to be distributed, the names of the friends and acquaintances who helped us gather the seeds from which they have grown. It is an almost universal tendency to pick out one single person and load him

with the credit for the success or failure of an undertaking, but this leads to fictions which are misleading, and sometimes quite dangerous.

Several persons contributed materially to our collecting success. The Chief of the Bureau of Forestry, Mr. Florencio Tamesis, put at our disposal his "Bahay Kubo," a charming bamboo cottage beside a mountain brook in the Makiling Arboretum, where we spent many busy days packing seeds and photographing flowers after each collecting trip. It was Mr. Tamesis also who took us on most of our delightful excursions in Luzon when, with automobile and truck, we explored the mountain highways and Forest Reserves for days at a time, returning to the Bahay Kubo with the truck laden with plants. On these trips Mr. S. M. Sulit, of the School of Forestry gave us much information and determined many of our plants. Nor should we forget to mention Conicosa, the plant collector, for no tree seemed too difficult for him to climb in search of fruits or flowers.

Those were unforgettable days, for Luzon includes many varieties of soil and rainfall. We ranged the pine forests of the Mountain Provinces, the sand dunes along the North Western Coast, the flat rice lands, through miles upon miles of coconut groves and into the glorious Dipterocarp forests and virgin jungle. Hotels were not numerous where we wanted to go but there were Forest Stations and the foresters and their wives were always eager to entertain their Chief and his guests.

It was at Mount Makiling that we renewed our friendship with that truly great tropical forester, Professor H. M. Curran, and with Mrs. Curran and the other members of the family of this plant enthusiast who has spent his life in the forests of North America, Brazil, and the Philippines. One cannot but envy the marvellous experiences of Professor Curran, whose eyes have, day after day, for years on end, rested on the forms of gorgeous forest trees, gigantic lianas and superb tree ferns. He knows his

forests by night as well as by day, and has slept out in the rain many times to waken at dawn on some mountain top in those wonderful islands of the Philippines.

Because of his training with his father on many expeditions, we invited his son, Hugo Curran, to go with us on the Junk. His ability to discover trees in bloom or in seed, high up on the mountain side, and his strength of limb to scale cliffs or climb up the trees and get possession of the seeds proved a most valuable asset. Very many of the plants which will be distributed from the Garden would not be here had it not been for Hugo's passion for walking in dense mountain forests and his ability to find his way through them and back again. Only once did he get lost; but none of us will forget the night off Batchan when he did not come back, and we organized among the natives a search party for him, only to have him walk in on us, having slept on a bed of poles in a mangrove swamp.

To Mr. de la Cruz, in charge of the Experiments in the Utilization of Forest Products and Director of the Makiling Arboretum we are deeply indebted for many courtesies shown to us at the arboretum. To Dr. Quisumbing also we are indebted for the determination of certain species by comparison with the herbarium specimens in the Herbarium of the Bureau of Science. This owes its inception to Dr. Merrill who, during his long sojourn in the Philippines, devoted his time to the work of making there an invaluable collection of botanical specimens and to the creation of the Bureau of Science, now a center of research of great importance in the Orient.

And so we turn over to you these living, growing little plants with all their possibilities, in the hope that some day in the years to come you will recall that they were collected by us in the islands of the Orient and that many of them were gifts from the plant-loving people of those delightful isles.

THE NUMBERS on the following descriptions will be the same as those on the halftones and also on the labels fastened to the plants, so be sure to preserve this list and fasten it with your other occasional papers in your Fairchild Tropical Garden folder for future reference. Not all the plants are illustrated.

No. 1—F. G. Ex. *Gardenia longiflora*

The tree in the Makiling Arboretum is said to resemble the Western dogwood (*Cornus nuttallii*) when it is in full bloom and to scent the air around it with a delightful perfume. The large, single, white blooms turn yellow as they fade. We enjoyed having sprays of it in water in the Bahay Kubo. It is a native of the clay loam soils of the low country of Luzon, Philippine Islands.

No. 2—F. G. Ex. *Pandanus copelandii*

The gorgeous scarlet fruit of this Pandan make it deserving of trial both on seashores and in



No. 1. It is interesting to speculate on the possible careers of the two species of Tropical Gardenias described here. They may perfume our patios, or, should they prove too tender perhaps they will leave hybrids behind them that are hardy. They are No. 1 *G. longiflora* and No. 441. *G. philastreii*.



No. 2. This was our first scarlet fruited pandan or screw pine and the sight of its brilliant fruit clusters was the event of our first excursion in Luzon. Conicosa the seed collector, is being shown how to hold the long leaves to be photographed and Mrs. Fairchild is advising him.

hammock shade. The leaves are eight feet long by four inches wide and its leaf fibers are unusually tough, making it particularly useful for mats. We found it on the roadside near the village of Lansiana, Luzon.

No. 3—F. G. Ex. *Zingiber* sp.

The bright red flowers of this ginger, which forms clumps two feet high, made a most attractive show in the Makapuno coconut plantation of de la Rama at San Pablo, Luzon. We had gone to see where the makapuno-bearing coconuts came from which were introduced in 1938 for the Matheson plantation on Key Biscayne, when Mrs. Fairchild discovered this handsome plant near one of the very trees from which the nuts came. This should grow and flower well in our patios and gardens and may also do well on the "Sand Keys."

No. 5—F. G. Ex. *Pithecolobium subacutum*

A small, attractive tree for lawn planting, with a rounded crown, greenish yellow flowers

one inch through and pretty, bright orange pods that turn brown. Foliage dark green. Since two species of this genus have grown well here, one becoming the widely planted street tree (*P. dulce* from Mexico), this deserves a trial on lawns and perhaps as a street tree. Gift of the Makiling Arboretum, Luzon.

No. 9—F. G. Ex. *Oncosperma gracilipes*

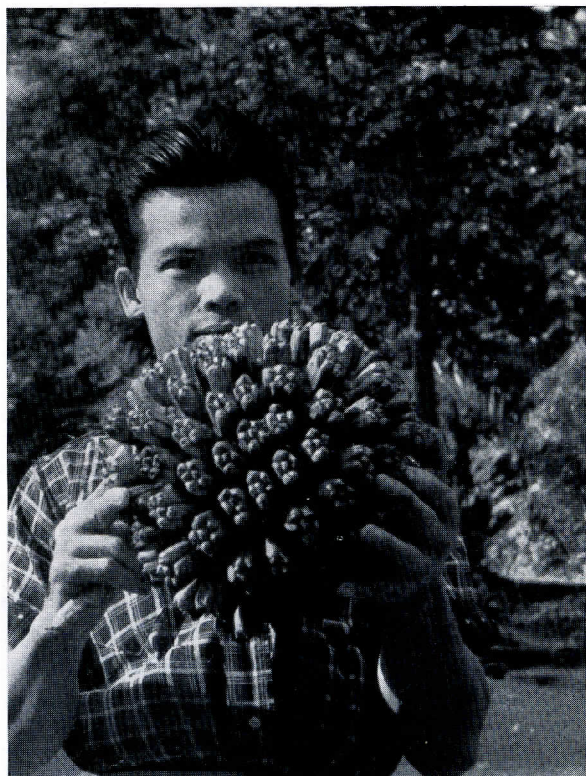
An extremely graceful but spiny feather palm which grows in very tall clusters and will stand deep shade. Its bunches of black fruit the size of marbles are attractive, and its young leaves are a beautiful red color which may make it a desirable palm for tub culture. Collected in the forest along the road to Infanta, Tayabas, Luzon.

No. 20—F. G. Ex. *Pinanga insignis*

A forest feather palm of graceful habit; solitary; growing to four inches in diameter; bears clusters of dark red, handsome fruit the size and shape of small acorns. It might be tried as a



No. 3. Like large red cones, these flower spikes were half hidden under the leaves which the little boy is holding aside. This was our introduction to a number of beautiful plants belonging to the ginger family which are so far unknown in Florida.



No. 22. Guilielmo, who cleaned many seeds for us, took delight in holding up this brilliant red fruit of a handsome pandan found growing on the seashore. Florida needs these bright colored species along its beaches.

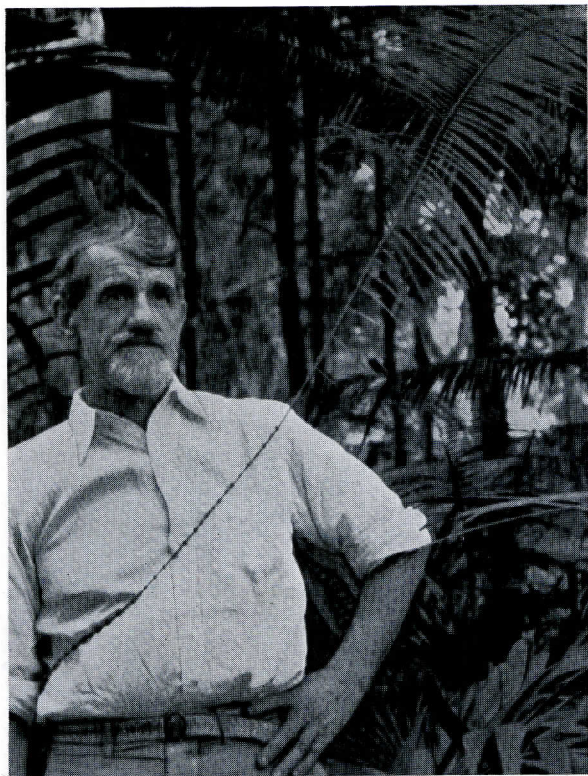
house palm or in shaded patios. From the deep forest of Makiling Arboretum, Luzon.

No. 22—F. G. Ex. *Pandanus* sp.

A narrow, spiny-leaved species of pandan which bears strikingly ornamental fruits eighteen inches through and of a gorgeous red color which we found growing close to the seashore near Puerto Real, Luzon. It would beautify any garden in which it fruited. The sandy beaches of Florida may grow it.

No. 23—F. G. Ex. *Calamus ornatus*

Most people sit upon their cane-seated chairs without realizing where the rattan comes from of which the chair bottoms are composed. Its strands are stripped from the long stems of several species of *Calamus* palms. These palms are among the most remarkable plants which compose the tropical jungles of the Philippines, for they have slender trunks so long that they coil like a cable on the ground; and the mid-ribs of their feathery leaves are elongated into



No. 29. Professor H. M. Curran caught by the swinging tip of a rattan palm that is growing in his Palmetum in the Makiling Arboretum in Luzon. He has spent many days cutting his way through forest trails obstructed by tangles of this and other species of rattan.

flagellae that are sometimes twenty-five feet long. These flagellae are armed with short, recurved spines as strong as steel which, once they catch hold of the branches of some nearby tree hang fast and enable the palm to climb from the shady forest floor up to the tops of the highest trees and into the sunlight. Their trunks are beautifully spined. Their use in gardens and patios here will require some ingenuity but their interest and beauty will repay the effort. From Makiling Arboretum, Laguna, Luzon.

No. 29—F. G. Ex. *Daemonorops mollis*

One of the rattan palms from which the fiber is secured to make our rattan chairs. It is a climbing, spiny palm of very rapid growth which has long, slender, feathery leaves ending in "flagellae" or elongations of the midribs. These tips are armed with recurved spines which are as hard as steel and are among the "wonders of the plant world." It is by means of them that the palm climbs up from the shade of the

tropical forest floor into the highest tree tops and the sunlight. May prove fascinatingly interesting for a large pergola or in pots; possibly for hedge purposes.

No. 30—F. G. Ex. *Pinanga philippinensis*

Slender, graceful, sylvan feather palm which bears pretty red fruit in large showy clusters. Being a denizen of the deep forest, it should be tried as a patio palm or on the shady side of the house where it can be given plenty of water. Gift of the Makiling Arboretum, Luzon.

No. 31—F. G. Ex. *Calamus siphonospathus*

One of the many species of rattan palms which make up the tangle of "growth" that impedes the traveler through tropical jungles. Its recurved spiny leaf tips may prove a serious objection to its culture except on pergolas in parks as objects of curiosity or for the production of "rattan" fiber so useful in chair making, etc.



No. 49. Looking for palm seeds in Luzon with such keen eyed collectors as Mr. Tamesis and Hugo Curran (left) sometimes involved the dragging of specimens from behind some thatched house by the roadside. *Livistona* sp.

Its yellow fruits three-eighths inch in diameter are decorative and may be used for necklaces. Gift of Makiling Arboretum, Luzon.

No. 34—F. G. Ex. *Amorphophallus campanulatus*

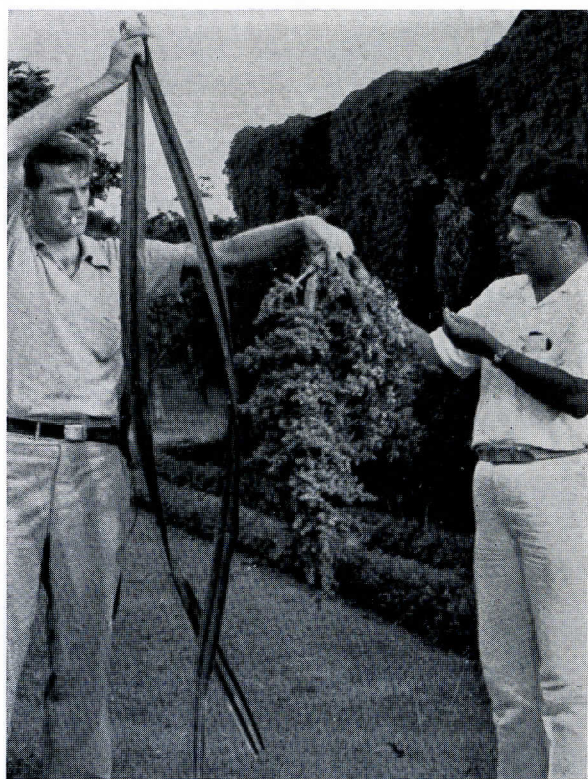
The foetid odor of the flowers of this genus of plants should not deter people from growing them, for it is easy to cut off the flowers when they open. This is a large species with mottled green stems and is very decorative. It grows fast where plenty of water can be given it and the soil is rich in humus. Presented by the Economic Garden of the Agricultural School, Laguna, Luzon.

No. 35—F. G. Ex. *Alocasia macrorrhiza*

There is something fascinating in mere size and the gigantic leaves of this aroid, which are often eight feet long and four feet across make it a most spectacular object. In wet rich soil



No. 50. Stranger things have happened in the world than that this slender little palm which is growing under the shade of the Dipterocarp forest at Infanta should become a house palm in America and the race of Negritos to which the man standing beside it here belongs, vanish from the earth. It is Temesis' palm. (*Pinanga maculata*)



No. 52. What an exciting time we had identifying this strange but fascinating relative of the pandans. Only two species are known, this one in the Philippines and another in the Solomon Islands and it seems not to have been brought into cultivation. (*Sararanga philippinensis*)

the trunk becomes over a foot through and the whole plant is twenty feet tall. Laguna, Luzon.

No. 36—F. G. Ex. *Euonymus javanicus*

A handsome little tree with clusters of pink fruits which open like the Northern species of *Euonymus* and show their black seeds bedded in their orange colored arils. These fruits are an inch through and very pretty. The tree likes moist situations and might possibly grow somewhere on the edge of the Everglades. It may also do well in patios or near pools. Makiling Arboretum, Luzon.

No. 39—F. G. Ex. *Caryota cumingii*

A native "Fish Tail" palm of the Philippines; a solitary species which does not sucker and does not grow more than twenty feet. Its trim shape and small size has made it a favorite in the gardens of Manila. Presented by Makiling Arboretum.



No. 58. Had the tall, exceedingly graceful palm that grew in the forest at Tondoc not borne these small fruits, I would almost have believed it some coconut palm which had strayed into the forest from the beach. It may grow here where the coconut fails. (*Orania palindan*)

No. 45—F. G. Ex. *Nauclea orientalis*

The "Bankal" of the Tagalogs of the Philippines is an ornamental tree which will probably grow where the salt spray reaches it. According to Professor Curran, it occurs in poorly drained places and withstands drouth well. Mrs. F. S. Baker of Tandoc, a native Nova Scotian, who made a very pretty garden in Camarines Sur, Luzon, presented these seeds to Mrs. Fairchild, who had a hard time cleaning them. When her tree in the garden by the sea was in bloom she declared it was a beautiful sight with its pretty white, compact flower heads of a very striking character. Alas; the day we left Tandoc for Manila, the saw mill of which her husband was manager burned down and she has had to abandon her beautiful garden. Perhaps some time she may see her *Naucleas* blooming here.

No. 49—F. G. Ex. *Livistona* sp.

The *Livistona* palms play a most important role in the Philippines. A single dry leaf fastened about the neck keeps a rice planter's back

dry; roofs of the houses are thatched with their leaves. Their hard trunks make beautiful polished timbers; and the shallow sun hats made of their leaf fibers are very popular. The fruits are eaten by the birds. The ordinary fan palm of commerce is usually from a *Livistona* leaf. Collected in a dooryard near Naga, Luzon, Mr. Sulit says this is the "Swamp Anahau" Palm, probably a form of *L. merrillii*.

No. 50—F. G. Ex. *Pinanga maculata*

A slender, solitary, thin-stemmed palm bearing leaves that are mottled with patches of darker and lighter green. It may require special protection but as it only grows twenty feet tall it is suitable for tubs and large pots. Its fruits are salmon pink, turning to orange. It will require protection and may prove tender. In the Bureau of Forestry in Manila this is known as *Tamesis*' palm in honor of their Chief who first brought it into culture. Seeds from the Bulusan National Park, Luzon.



No. 60. This is another of the Philippine palms named after Dr. Merrill. It might have been more romantic to picture it growing in the wilds, but it is from the seeds this little boy collected by climbing the palm in his father's dooryard that the plants to be distributed have grown. (*Livistona merrillii*)

No. 52—F. G. Ex. *Sararanga philippinensis*

An extraordinary tree-like plant related to the pandans, with leaves three inches wide and eight feet long and with fruit clusters two and a half feet long which are of a handsome grey-green color. Its yellow berries are very decorative, with interesting markings. Being a forest species it probably requires some shade and an abundance of water. Little is known regarding this genus and its soil requirements. Collected by Hugo Curran in the Cadwallader-Gibson Concession at Tandoc, Luzon, P. I.

No. 58—F. G. Ex. *Orania palindan*

This beautiful Philippine palm, named after William of Nassau, Prince of Orange, has leaves that are perhaps even more graceful than those of the coconut. The fruits, borne on long fruit clusters are the size of golf balls and of a pretty yellow color. Its trunk grows perfectly straight to about twenty feet in height. A forest species and possibly adapted to situations unsuited to



No. 63. Professor Sulit whose wide botanical knowledge enabled him to name at sight a great many of the interesting plants we saw, took a fancy to this *Pothoidium*; interesting for its strong shaped leaves and beautiful because of its brilliant red fruits.



No. 74. To wander alone through a forest of *Dipterocarps* in Luzon and watch the sunlight play upon such delicate green fan-shaped leaves as those of this superb palm is to add an unforgettable experience to one's life. (*Livistona robinsoniana*)

the coconut. Collected in the forest of the Cadwallader Gibson Estate, Tandoc, Camarines Sur, Luzon, P. I.

No. 59—F. G. Ex. *Pinanga insignis*

Similar to No. 20. Seed collected in the forest at Tandoc, Camarines Sur, Luzon. Its slender habit and feathery leaves, not to mention its large clusters of brilliant red fruits, may make this a favorite patio palm in Florida.

No. 60—F. G. Ex. *Livistona merrillii*

Strikingly handsome fan palm which in the deep forests of the Philippines raises its perfectly straight trunk to over 100 feet but in the open is generally about 40 feet high. Like No. 49, its uses by the Filipinos are many. The seed from which these palms grew were collected from a palm in the dooryard of Mr. Vival in Le Gaspe, Luzon. It bears dark, almost black fruits on long fruit clusters.



No. 87. As we approached Magat the beautiful ringed trunk of this palm attracted our attention. It stood in a swampy spot and to get the seed Hugo had to cut it down. As Conicosa held the brilliant blue fruits in his hands and I saw the grace of its giant leaves I thought it the handsomest of the Livistonas. (*L. saribus*)

No. 61—F. G. Ex. *Zingiber sylvaticum*

A species of ginger with attractive grey-green leaves and pretty orange colored berries borne in clusters on slender hanging stems. A doorway ornamental of merit. Found near the lumber railroad track in the Cadwallader-Gibson Concession, Tandoc, Luzon.

No. 63—F. G. Ex. *Pothoidium lobbianum*

A climbing aroid with strange leaves of which the petioles are broad and strap-like, broader in fact than the true leaves, which latter are reduced to mere rudimentary "leaf tips." Its branched fruit cluster of large handsome red fruits shows off against the beautiful foliage which sometimes covers the whole trunk of a large tree in the forest. May prove very valuable for patios and dooryard gardens. Collected in Sorsogon, Luzon.

No. 73—F. G. Ex. *Alocasia zebrina*

A handsome species of aroid with its yellowish petioles marked with bands of green. Native of the Philippines. Collected in the Bulusan National Park, Luzon.

No. 74—F. G. Ex. *Livistona robinsoniana*

This superb fan palm rises to 100 feet in dense forest. I have never seen it growing in the open. It differs from *L. rotundifolia*, the commoner species in the Philippines, in having red fruits, not violaceous ones. Its seeds are covered with brown velvety fuzz. It deserves to be thoroughly tried out in dooryards, parks and gardens where its beautifully ringed trunks will attract attention. From the end of a logging trail in the Cadwallader Gibson Concession, Tandoc, Camarines Sur, Luzon.

No. 76—F. G. Ex. *Pinanga* sp.

Slender feather palm growing to twenty-five feet on the slopes of the Volcano Bulusan at 3300 feet altitude. Bears large clusters of pretty



No. 90 Conicosa the plant collector with a bunch of *Pittosporum* fruits. To see him work his way up a tall fifty foot forest tree by using the giant vines hanging from its branches is to realize that tree climbing is an art.

red fruits one-half inch long. A shade loving species which probably requires much moisture. For trial in patios and shady gardens. Luzon.

⁸¹
No. 76—F. G. Ex. *Orania palindan*

This large fruited form of the superb feather palm known in the Philippines as "Palindan" is worthy of careful trial in South Florida as a landscape palm. This number may be slightly different from No. 58. Seeds presented by Makiling Arboretum, Luzon.

No. 84—F. G. Ex. *Livistona robinsoniana*

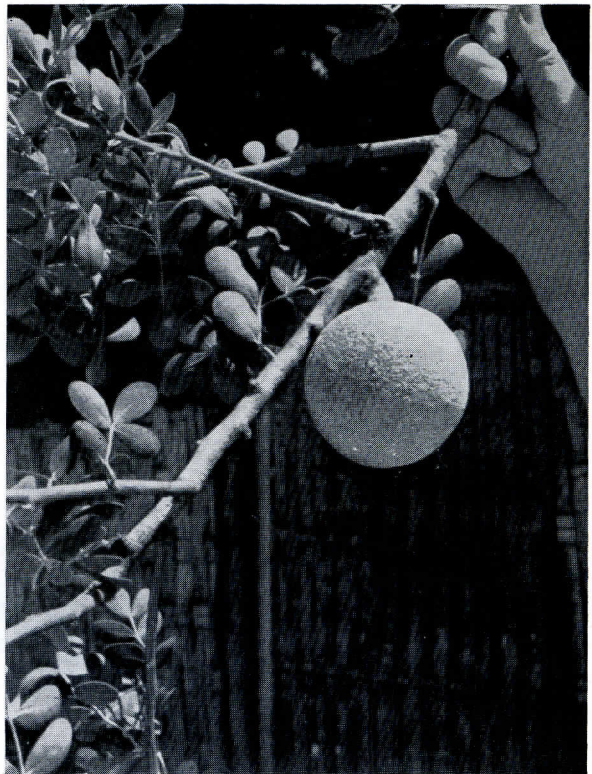
The same species as No. 74. From seed collected along the roadway from Siniloan to Infanta, Luzon.

No. 85—F. G. Ex. *Ficus megacarpa*

An immense climbing species of fig which behaves like *Ficus repens*; starting its growth as a delicate small-leaved vine, growing over rocks and tree trunks, covering them up. When the vine reaches the sunlight pouring down on the



No. 92. We found this fig good to eat. Perhaps some day a way will be found to improve it and we shall have an excellent tropical fig. (*Ficus nota*)



No. 102. Like its relative the Bael fruit this perfectly round hard shelled fruit is eaten fresh with plenty of sugar or made into a sherbet. It is grown in the drier parts of India for its fruits. Dwarf trees of it are made by budding. Its newest name is *Feronia limonia*, Swingle.

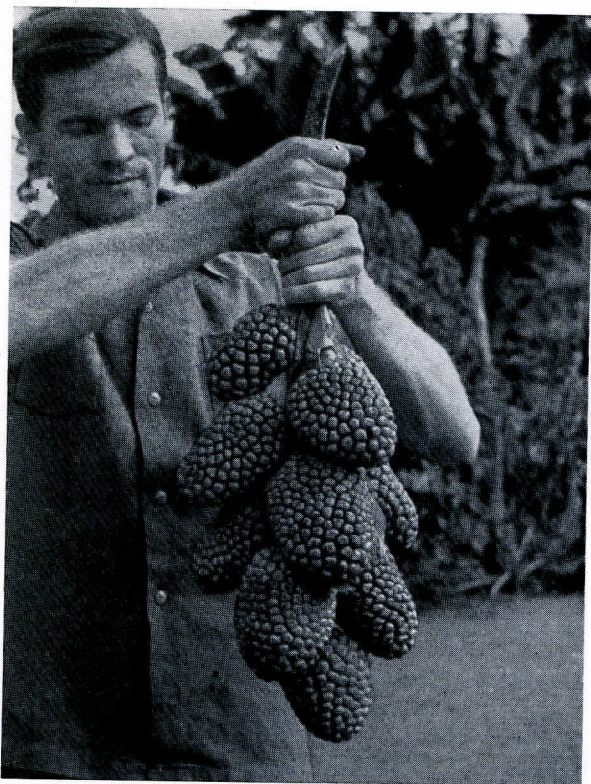
tree tops far above the ground it spreads out and produces large leaves and quantities of fuzzy red fruits as large as billiard balls. Unfortunately these are not sweet. From Makiling Arboretum, Luzon.

No. 87—F. G. Ex. *Livistona saribus*

This is the true "Tarau" palm of the Philippines. It bears the most beautiful indigo blue fruits of any of the palms and I hope will some day take its place in our Flower Shows. Its trunk, ringed with pretty leaf scars, is over sixty feet high in the Cagayan Valley, where it grows in large numbers. The seeds were collected in a swampy situation at the Forestry Station of Magat near Bayombong, Luzon, where we spent an unforgettable collecting day.

No. 88—F. G. Ex. *Tabernaemontana pandacaque*

A glossy leaved shrub which bears fragrant jasmine-like white flowers an inch across. Its



No. 153. This is only one of the 150 species of screwpines of the Old World tropics. Its decorative use is the only use we know but the men and women who have not yet been overwhelmed by the manufactured articles of our machine age have many uses for the pandans.

fruits are bright orange and decorative. Collected by Mrs. Fairchild on the roadside between San Miguel de Mayuno and Cabanatuan, Luzon. Other species of this genus do well in Florida.

No. 90—F. G. Ex. *Pittosporum pentandrum*

A tree which may grow to sixty feet but usually remains shrubby. It has handsome, strap-like leaves with wavy margins and rather small flowers which are white and fragrant. The pretty orange red berries are borne in clusters. Other species of this genus thrive throughout Florida and this one may too. Collected at Bongabon, Luzon.

No. 92—F. G. Ex. *Ficus nota*

The "Tibig," a large fruited tropical fig which is really edible. Its fruits, nearly two inches across, are filled with a mass of seeds and juice which is agreeably sweet. We peeled them and ate them with sugar and cream and found them

distinctly good. The fruits are borne in large clusters from the trunk. Tree of medium size. It may need the pollinizing insect or *Blastophaga* to develop the full flavor and size of the fig. Collected near Magat Forestry Station, Bayombong, Luzon.

No. 95—F. G. Ex. *Pandanus* sp.

This pandan, with brilliant scarlet fruits, was found by Hugo Curran several years ago at Bukidnon, Mindanao, and he transplanted it to the Makiling Arboretum, where it is now growing. Should it find a congenial home on the sandy shores of Biscayne Bay it may come to be widely used to brighten up the landscapes there. It is a graceful form with narrow spiny leaves.

No. 102—F. G. Ex. *Feronia limonia*

The Wood Apple or Elephant Apple of India is a curiosity, for its fruits have a rind that is as hard as wood. Inside of this is a dry pulp that is used to make jelly, resembling, it is said,



No. 157. I hope to see this beautiful little tree in fruit here for its lavender, fragrant, flowers and scarlet fruits made a lasting impression on me.

black currant jelly. The leaves have a faint fragrance of anise. The tree would perhaps make a street tree here if it proves hardy enough. Like its relative the Bael Fruit, it belongs among the "Citrus Relatives." The seeds were collected from a tree in the experimental gardens of Lamao, Luzon, where P. J. Wester spent so many years and from which he sent in many species of interesting Philippine plants.

No. 119—F. G. Ex. *Terminalia calamansani*

In the dry hot region near Caniaw, East of Vigan, Luzon, where the climate is so dry that dust storms blow across it and the sand dunes remind one of those in the Saharah, this attractive shade tree grows luxuriantly. Other species of the genus *Terminalia* have done so well in South Florida, where they may be seen as street trees, that this one deserves a trial. Some day, perhaps, some enterprising plantsman will produce swift growing hyrds by crossing the different species which fruit here.



No. 306. The "Shell Flower" of our gardens is an *Alpinia* and there are many beautiful species waiting to be introduced. The scarlet fruits of this one were beautiful enough to make it worth a trial. What the flowers are like I do not know.



No. 443. The leaves of this native aroid of the Philippines are so strikingly different from those of other aroids that one botanist has put it in a separate genus and called it *Schizocasia*. (*Alocasia portei*)

No. 138—F. G. Ex. *Diospyros maritima*

The "Kammai" of the Tagalogs of the Philippines is a species of persimmon but its fruits are not good to eat. We saw this beautiful tree with its large, leathery, glossy green leaves on the island of El Templo. It grew on the rocky shore of that tiny island right down to the water's edge and I could not but think it would make a most desirable tree for the rocky keys which border Biscayne Bay. We gathered the fruits and Fenton Kilkenny took the seeds out of them but the juice of those fruits turned his hands inky black and raised blisters on them which lasted for two weeks. Many tropical fruits have poisonous properties and have to be handled carefully.

No. 146—F. G. Ex. *Ormosia calavensis*

When in fruit this is a showy landscape tree, for its clusters of chocolate brown pods open and show off their brilliant red seeds, two in each pod. Those interested in seed necklaces will want these brilliant seeds and it may prove



This raincoat is made by fastening two or three dried leaves of Dr. Merrill's "Anahau" palm together (F. G. Ex. 60). In the warm tropical drizzles of Luzon it keeps the back dry and together with a hat made of the stem sheaths of the "Buho" bamboo (*Gigantochloa levis*) is all the rain protection required.

useful also as a street tree. We collected the seeds at the summer camp of the naturalist, Professor J. W. Chapman, back of Dumaguete, Negros Island, P. I.

No. 153 F. G. Ex. Pandanus sp.

This superbly decorative pandan stands up on stilt roots twelve feet above the ground. It bears scarlet fruits in large clusters, the individual fruits being the size of large pine cones. Its leaves are nine feet long and two inches broad. Found growing on hammocks in fresh water swamps; should be tried on Everglade lands and also near the sea coast. From Davao-Aqusan highway near Davao, Mindanao, P. I.

No. 157—F. G. Ex. Callicarpa sp.

We were driving from Cotabato to Davao, across the island of Mindanao, when, at a turn in the narrow road, there suddenly burst into view a very pretty little tree that reminded me of an elder bush, for its fragrant, lavender

flowers, which were followed by brilliant red berries, were borne in flat-topped clusters. Birds were eating the fruits, so it is fair to conclude that the mocking birds of Florida will discover them when the tree fruits here.

No. 201—F. G. Ex. Areca sp.

When Hugo Curran came down from the top of Mt. Tomata, one of the peaks which crown the little island of Siao in the Sanghi Archipelago, carrying a fruiting stem and an immense leaf of this palm, he was fatigued almost to the breaking point, for it was more than a man's load. But when he showed us the gorgeous, brilliant lacquer red fruit cluster we understood why he had made the effort. If it can be grown here its flowering will be an event. It is a solitary feather palm with stilt roots four to twelve feet long. It will require careful handling with shade and moisture properly adjusted.



To show how long the leaf tips of the rattan palm (*Calamus reysianus*) often are, Dr. de la Cruz held the tip of one leaf in his hand and his assistant held another, while a second assistant held the cut off crown of the palm upright by the side of the road through the Makiling Arboretum.

No. 306.—F. G. Ex. *Alpinia* sp.

✓ On the slopes of Mt. Tamahoe, which rises from the sea on the west coast of the island of Boeroe, Netherlands Indies, Hugo Curran discovered this scarlet fruited *Alpinia*. He brought off to the Junk a cluster a foot long and two and a half feet through that had a hundred fruit on it each an inch long. When the red fruits split open they are a stunning sight with their shiny black seeds. The leafy stalks rise to six and eight feet from a rhizome and the leaflets are four inches wide, and scented. Around some pond or in some moist spot or patio this may make a very pretty show.

No. 441.—F. G. Ex. *Gardenia philastrei*

Mr. Montague Lord of Manila found this species growing near Ankor Wat in Cambodia and sent seeds to his garden. They have grown into trees fifteen feet high and when in flower in April he says they remind him of our Eastern dogwood (*Cornus florida*) for there is scant foliage on the trees when they bloom. The flowers are two and a half inches across and one inch long, of a light lemon color, turning orange as they fade. The trees perfume his whole yard. More striking perhaps than *G. longiflora*. All gardenias require well drained soil rich in humus.

No. 443.—F. G. Ex. *Alocasia portei*

The most spectacular plant in the little garden of the Bahay Kubo is this giant Aroid. Its immense leaves six to eight feet long have deeply cut margins that are wavy in outline, making it quite unique among the large aroids which I have seen. It had not flowered when we first arrived, but when we returned in July long fruit stalks tipped with scarlet fruit spadices had begun to ripen their soft shiny kernels. Could some one grow this in a patio he would be proud to show it to his friends.

No. 453.—F. G. Ex. *Alangium longiflorum*

Overhanging the Bahay Kubo in the Makiling Arboretum stands a tree of this species. During our stay there it showed no signs of flowers, but in March, while we were away, it dropped all its leaves and became covered with large white flowers two and a half inches long and one and a half inches across. These were very fragrant and were followed by red fruits which are both ornamental and edible. The tree grows to fifty feet in the moist, mountainside location where it is native. It may prove difficult to grow and will be tender, requiring winter protection.